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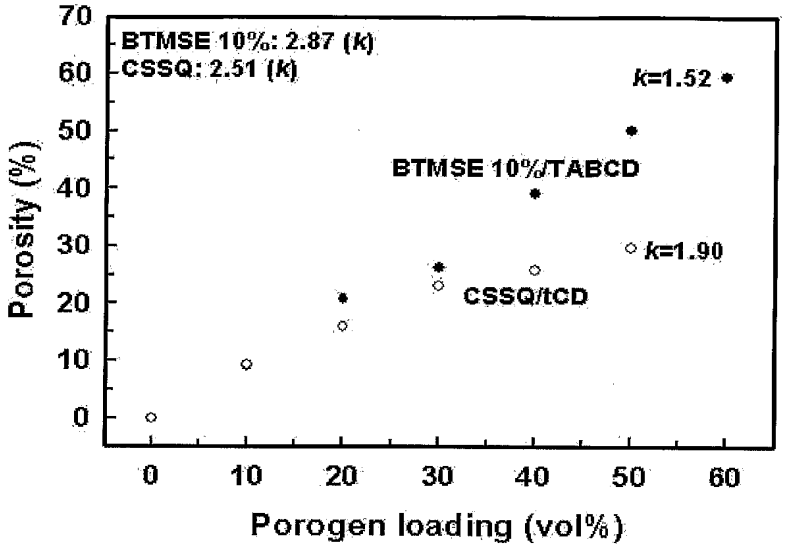
(54) Title: ULTRA-LOW DIELECTRICS FOR COPPER INTER CONNECT



(57) Abstract: The present invention relates to an ultra-low dielectric film for a copper interconnect, in particular, to an porous film prepared in such a manner that coating with an organic solution containing a polyalkyl silsesquioxane precursor or its copolymer as a matrix and acetylcyclodextrin nanoparticles as a template and then performing a sol-gel reaction and heat treatment at higher temperature. The present films may contain the template of up to 60 vol%, due to the use of acetylcyclodextrin, and have homogeneously distributed pores with the size of no more than 5 nm in the matrix. In addition, the present films exhibit a relatively low dielectric constant of about 1.5, and excellent interconnectivity between pores, so that they are considered a promising ultra-low dielectric film for a copper interconnect.

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